

Selection for the internal medicine residency programme in the Leiden region

T. KOSTER, R. DE GRAAF, A.E. MEINDERS

LEIDEN UNIVERSITY MEDICAL CENTRE, DEPARTMENT OF INTERNAL MEDICINE, LEIDEN, THE NETHERLANDS AND GROENE HART HOSPITAL,
DEPARTMENT OF INTERNAL MEDICINE, PO BOX 1098, 2800 BB GOUDA, THE NETHERLANDS, TEL.: +31 (0)182-50 50 50,
FAX: +31 (0)182-56 65 78, E-MAIL: TED.KOSTER@GHZ.NL

ABSTRACT

Background: The selection and the professional training for a resident in internal medicine requires a great investment of time, training effort and money. Drop-outs are therefore considered a failure of the selection procedure. To evaluate our selection model and outcome of the training programme, we determined the drop-out rate at the Leiden University Medical Centre with its affiliated hospitals.

Methods: Data were collected from all files that have been kept from 1988 onwards of all internists trained and registered in Leiden. These files contained the application forms, the assessments of the trainers and references and the specifications of the programme. Also the first employment as board-certified internist is registered.

Results: The drop-out percentage of the training programme was 8.5%. The drop-outs did not differ in study characteristics from those who successfully completed the programme. The reports from the training team members showed that the drop-outs were as suitable and motivated as the other candidates. During the training programme 8.5% of the residents moved to another university to complete their training as an internist. All board-certified internists who graduated at the Leiden University Medical Centre found a job.

Conclusions: The efficacy of the selection procedure for trainee internists is more than 90%. There are no studies in the literature for a comparison of data.

INTRODUCTION

In the Netherlands, the professional training of internal medicine specialists is conducted at eight university medical centres with their affiliated hospitals. This six-year programme is characterised by continuous learning moments provided and supervised by individual internists in the teaching hospitals ('master-apprentice relationship'). In addition, there is regular joint programme-oriented consultation and teaching (consultation with pathologists, radiologists, and surgeons, discussions of patients, referral meetings, and short courses). Training almost always takes place in two institutions, namely a university and a non-university teaching hospital. While under training, the future internist is supervised by a succession of specialist teachers. This requires great effort, on the part of both the trainee and the teachers. Prematurely breaking off the training means a great loss of invested time, money, and training effort for both parties, not to mention the personal disappointment. It is therefore of the utmost importance during the selection procedure to make as accurate an assessment as possible of whether candidates are suitable for the profession and will be able to complete their training programme and subsequently have successful careers as internists.

In the evaluation of the selection model in the Leiden region, information on newly qualified internists who completed the training programme and those who failed to do so has been studied. Investigations also focused on whether (un)successful completion could be predicted on the basis of facts that emerged during the selection period. A number of specifications of the programme and of the candidates were also studied.

MATERIALS AND METHODS

Selection procedure in the Leiden region

In the Leiden region, applicants interested in a residency must register centrally with a letter of application and a completed standard application form. Selection rounds are held every six months. The first selection is conducted by the regional programme director, who is also the chairman of the regional training committee. This person decides who is to be invited for an interview (first round). The references provided by all these candidates are then collected for information. All those selected have successive individual interviews (all on one day) with five professors of the university teaching hospital (second round). The members of this training team grade each candidate and submit written reports to the programme director. In a joint meeting, the most suitable candidates are selected. These candidates are given the opportunity to indicate their order of preference for the six regional non-university teaching hospitals where they would like to follow the non-academic part of their training (2-4 years). Usually, an interview takes place with the training team of the first two teaching hospitals selected by the candidate (third round). These regional training teams indicate which candidates they would want to admit to their training programme and whom they would prefer not to accept. After the information from the interviews held in the university hospital and in the non-university teaching hospitals is matched, a choice is made by the regional programme director, taking into account the results of the applications, the available places, and the preferences of the candidates. A preliminary training programme is determined and submitted to the Medical Specialists Registration Commission for approval.

Programme specifications and outflow study

Since 1988, files have been kept of all internists trained and registered in Leiden, containing the original application forms, assessments by trainers and references, and the specifications of the programme. Information on where the internist has continued his or her career after registration is systematically stored. The current place of employment is usually also known. This part of the study covers all 102 qualified internists from the Leiden region who registered as internists between 1 January 1988 and 31 December 2000.

Drop-out study

Since 1989, files have been kept of every successive accepted candidate, containing the application forms, the assessments by trainers and references, and the specifications of the programme. The present study covers all 59 persons who, between 1 January 1989 and 31 December 1994, began their training as internists. The success rate

of this group is 100% because all residents in this group of research subjects registered as internal medicine specialists before 31 December 2000.

RESULTS

Programme specifications and outflow study

The programme specifications are listed in *tables 1* and *2*. Men continue to constitute the larger part of the group of residents. The average duration of the programme is five and a half years and ranges from four to eight years. Programmes were shorter for persons who served as non-trainee residents, who conducted academic research or who left prematurely to subspecialise, and extended for

Table 1

Trainee and programme characteristics

Men : women*	73 : 29 (72% vs. 28%)
Mean age (range) at MD degree	27 years (24-36)
Mean waiting period (range)	2.0 years (0.04-11)
Mean age at start specialist training programme (range)	29 years (24-37)
Mean age at becoming a board-certified internist (range)	34 years (30-42)
Mean duration of the specialist training programme (range)	5.5 years (4.0-8.0)

* there were no differences between men and women for the other variables

Table 2

Profile specifications of residents at admission

Cum laude graduation	
Yes	22%
No	50%
Unknown	28%

Medical school at Leiden University

Yes	61%
No	39%

Administrative functions during medical school

Yes	85%
No	15%

Voluntary student researcher

Yes	75%
No	25%

PhD study before or during residency

Yes	23%
No	77%

those who combined the training programme with PhD research. The average two-year waiting period between the final medical examinations and the start of the specialist programme is usually filled with work as a non-trainee resident, (academic) research, military service, or a combination of these. A quarter of the researchers had started with their PhD research before the start of the specialist programme. This group obtained a PhD before registration as an internist.

A *cum laude* graduation from medical school is considered an asset when applying for access to the residency programme. A pass with distinction could only be established for 22% of the residents. At least half of the researchers did not have this designation. It is remarkable that a considerable percentage of the candidates (39%) did not study medicine in Leiden. On the contrary, many students from other universities enrolled in the Leiden specialist programme. Amsterdam, Rotterdam, Utrecht, Nijmegen, Groningen, and universities abroad provided 13, 10, 3, 6, 6, and 2%, respectively, of the residents.

Most trainee internists performed some research on a voluntary basis when they were medical students or held administrative functions, usually in student associations. It is impossible to say whether the profile as depicted in *table 2* leads to a greater chance of entering the specialist training programme since this information is lacking for the large group of candidates who were not accepted.

Table 3
Outflow characteristics immediately following registration (n=102)

Subspecialising and PhD research	43% (LUMC*) + 5% (non-LUMC)
Subspecialising without PhD research	29% (LUMC) + 5% (non-LUMC)
Staff member internal medicine with or without PhD research	10%
Internist in hospital abroad	4%
Internist in non-university hospital	3%
Pharmaceutical industry	1%

* LUMC = Leiden University Medical Centre

Table 4
Current positions held at December 2000 (n=102)

Subspecialising and PhD research	23%
Subspecialising without PhD research	4%
Member of staff in university hospital	28%
Internist in non-university hospital	36%
Internist abroad	5%
Pharmaceutical industry	1%
Unknown	3%

Twelve of the 29 female residents (41%) had a total of 13 pregnancies. The pregnancies took place almost exclusively in the last (academic) part of the programme.

Table 3 presents information on the period following qualification as an internist. The majority of the newly qualified specialists expanded their careers by subspecialising, sometimes in combination with PhD research. Only 7% left immediately for a peripheral hospital in the Netherlands or abroad.

As concerns the subspecialties, most trainee internists went on to nephrology (23%), haematology (20%), or gastroenterology (15%). A smaller percentage opted for intensive care (12%), infectious diseases (11%), oncology or endocrinology (both 7%) for the endorsement. Finally, a further 5% subspecialised in rheumatology. The chosen subspecialty coincided with the preference as expressed on the original application form or in the letters of the members of the training team, in only a minority of cases (27%). *Table 4* gives an overview of the current functions of the 102 internists from the 1988-2000 cohort. It shows that, by now, one third have found a permanent staff position and that most candidates ultimately go to a peripheral hospital. Of the 102 candidates, 47 have obtained their PhD and approximately 23 are still working on their dissertation. Five internists from this cohort have become professors.

Drop-out study

Of the 59 persons who started the programme in the period between 1989 and 1994, five (four men and one woman) prematurely ended their training (8.5%). Two of these never started the programme. The other three were in training for three months, one year, and three years, respectively. The drop-out occurred in different hospitals, the current speciality is known for four of them: radiologist, pathologist, rheumatologist, and head of a blood transfusion laboratory. Reports from the training team gave no indications that these candidates would stop. The drop-outs were as suitable and motivated as the other candidates. However, the drop-outs were on average older when they started or should have started the programme (they were 28, 30, 32, 33, and 39 years of age), and two (i.e. 40%) already had a PhD as against 23% of the non-drop-outs. There were no other clear distinctions in the profile (*table 2*).

In the period under review, another five (8.5%) residents exchanged the Leiden area for a different training region. One trainee came to Leiden from another Dutch training region.

DISCUSSION

Our evaluation study into the effectiveness of the selection procedure for internists shows that more than 90%

of the accepted candidates successfully completed the programme and subsequently found a job. Two of the five drop-outs cancelled before the actual start of the programme. The other three were in training for an average 18 months. The loss of invested labour-intensive teaching effort therefore ultimately concerns three of the 59 candidates (5%). In the literature, no previous publications on non-completion of internist training programmes were found, so comparison with other internal medicine training programmes is not possible. However, there is an article by Keeman and Lagaay on the selection of trainee surgeons from which a drop-out percentage can be calculated.¹ Keeman and Lagaay assessed the 1984-1987 cohort in 1988. This cohort consisted of first-year to fourth-year trainee surgeons. Two of the 63 residents (3%) had dropped out. Unfortunately, no drop-out percentage is known after a complete follow-up assessment of the cohort. Two other residents were considered to be unsuitable and were transferred to a different hospital. What happened to these two candidates is not known either. The Medical Specialist Registration Commission in the Netherlands does not have data on drop-outs from specialist training programmes (...personal communication).

On average, the five drop-outs in our study were older, and a larger percentage of them had a PhD at the time they started the programme, compared with the non-drop-outs. Given the fact that the number of individuals involved is very small, no conclusions can be drawn. It cannot be determined whether aspects of the profile (table 2) and other factors that are not mentioned will increase a candidate's chances to be admitted to the specialist programme, because no data are available on the candidates who were not selected. It can be generally stated that a non-required letter of recommendation, (academic) on-the-job training abroad, arranged by the candidate him/herself, evidence of own initiative, both as concerns the study and otherwise, or excellent study results will impress the selection committee favourably. An excellent assessment of the candidate's period as a non-trainee resident at one of the non-university teaching hospitals will increase the chance of a residency. A satisfactory non-trainee residency in the Leiden University Medical Centre is almost always followed by enrolment in the programme. In the course of the programme, 8 to 9% of the residents left Leiden to continue their training in another region. For the Leiden region, this means that an experienced resident leaves and a new, inexperienced resident, who needs more intense supervision, enters the programme. In other words, the profit of the teaching investment is cashed in another regional training programme. Nationally, and also from the perspective of the resident, there is no loss of teaching effort. A change of region is probably experienced as an enrichment by the resident.

The outflow study shows that only a few of the newly qualified specialists left directly for a peripheral hospital. A total of 92% continued their careers in an academic environment, 10% of them outside the Leiden region. At least two factors affect this tendency. The first is the restrictive attitude of the training team in admitting candidates who already have a PhD, since they show a greater tendency, after registration, to leave for the non-university hospitals. Since the majority of the candidates do not take their PhD until after their registration, usually in combination with completing their subspeciality, a sort of nursery is thus created for internal medicine scientific work and staff recruitment. The other important factor is the demand of the non-university hospitals for colleagues with a subspeciality. With an eye to the future, the expected shortage of internists may lead to a reduced demand for subspecialities and the PhD research projects linked to these programmes. In our view, this tendency will affect the recruitment for academic staff functions. In combination with the expected shortage of medical school graduates (i.e. an evaporating reservoir of potential temporary researchers), this tendency may lead to less scientific output. As far as is known, none of the participants in this study are unemployed (table 4). However, we want to emphasise that no information was available as to whether the participants found jobs, which were their first choice. Also, information about the length of the application periods for these jobs was not registered. Furthermore, information on whether the jobs were fulltime and information on job satisfaction is lacking.

Finally, we would like to state that our descriptive study on material collected in the past cannot lead to firm conclusions, mainly because a control group is missing and the available information was not comprehensive enough for more detailed research questions. However, given the relevance of the subject for both society and the training teams, we forwarded these results in order to stimulate a discussion on the 'ideal selection procedure' and to argue for more (combined) research on this issue.

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